

# Table of Contents

1	History, Technology and Commerce .....	1
1.1	A Brief History of Money and Mobile Technologies.....	1
1.2	From Mobile Banking to Mobile Payment.....	4
1.3	The Development of Mobile Payment Services up to 2020 .....	5
1.3.1	The Terrain.....	5
1.3.2	The Individual Features .....	6
1.4	The Four Core Mobile Payment Segments .....	8
1.4.1	Characteristics of the Various Core Segments .....	8
1.4.2	Payment Service Networks.....	10
1.4.3	Enterprises, Case Studies and Initiatives.....	10
2	The Market .....	13
2.1	El Dorado in the South .....	13
2.2	Japan's Pioneering Role among the Developed Countries.....	15
2.3	Skepticism and Awakening in Germany .....	20
3	Strategies.....	23
3.1	Foundations .....	23
3.2	The Bank-Driven Model.....	24
3.3	The MNO-Driven Model.....	28
3.4	The Collaborative Model.....	32
3.5	The Independent Model.....	34
3.6	Summary .....	37
4	Mobile Technology and Security.....	39
4.1	Preliminary Remarks .....	39
4.2	USSD .....	40
4.2.1	The Technology .....	40
4.2.2	Potential Risks Associated with USSD Transactions .....	40
4.2.3	Summary .....	41
4.3	BLE – Bluetooth Low Energy .....	42
4.3.1	The Technology .....	42
4.3.2	Summary .....	42
4.4	SMS.....	43
4.5	WAP/Internet.....	45
4.6	QR Codes.....	46

4.7	Near Field Communication (NFC) .....	47
4.7.1	History .....	47
4.7.2	NFC Applications .....	50
4.7.3	Summary .....	53
4.7.4	General Security Threats to NFC .....	53
4.7.5	Solutions and Recommendations .....	54
4.7.6	Summary .....	55
4.7.7	General Description of the Security of NFC Applications .....	56
4.7.8	Functional Security .....	57
4.8	Excursus: FeliCa .....	59
4.8.1	Contactless Data Exchange .....	59
5	Innovation Management .....	61
6	Case Studies .....	67
6.1	M-PESA: Most Successful Mobile payment Service .....	67
6.1.1	Overview .....	67
6.1.2	Prerequisites for Success .....	69
6.1.3	M-PESA Development .....	73
6.1.4	How M-PESA Works .....	75
6.1.5	Future Challenges .....	77
6.1.6	Background Information on M-PESA .....	78
6.1.7	Conclusion .....	79
6.1.8	Lessons Learned .....	82
6.2	Osaifu-Keitai – The Japanese Model for Developed Countries .....	84
6.2.1	Sony's Felicity Card (FeliCa) as the Basis of Innovation .....	84
6.2.2	Suica – the Ticketing Innovation from JR East .....	86
6.2.3	NTT DoCoMo's Osaifu-Keitai Innovation .....	87
6.2.4	The New Value-Added Strategy .....	87
6.2.5	The Innovative Osaifu-Keitai Business Ecosystem .....	89
6.2.6	Multi-sided Platform Strategy as a Basis for Business Development .....	91
6.2.7	Development of Suica and Osaifu-Keitai .....	91
6.2.8	The Reasons for Success in Japan .....	93
6.2.9	Current Proposals for Improving e-Money in Japan .....	94
6.2.10	Summary and Recommendations Drawn from Osaifu-Keitai .....	94
6.3	The Starbucks Touch-to-Pay Service .....	97
6.3.1	The Development of the Service .....	97
6.3.2	Services Dependent on a Smartphone Operating System .....	99
6.3.3	Summary .....	100
6.4	Square .....	102
6.4.1	How Square Works .....	102
6.4.2	Square Summary .....	104

6.5	Google Wallet (Tap and Pay).....	107
6.5.1	Overview.....	107
6.5.2	Payments.....	107
6.5.3	Security.....	107
6.5.4	Partnerships.....	108
6.5.5	Google Wallet's Trajectory So Far.....	108
6.5.6	Summary.....	110
6.6	MasterCard PayPass.....	110
6.6.1	Contactless Payment with the MasterCard Pay Pass.....	110
6.6.2	Contactless Payment and Security.....	111
6.6.3	History.....	111
6.6.4	MasterCard Ecosystem.....	112
6.7	iZettle.....	112
6.7.1	The Payment Procedure.....	112
6.7.2	Processing of Payments.....	113
6.7.3	The Business Model.....	113
6.7.4	iZettle Summary.....	113
6.8	mpass (Mobile Payment Service Offered by Wireless Carriers).....	114
6.8.1	Development of mpass.....	114
6.8.2	How mpass Works.....	115
6.8.3	Security.....	116
6.8.4	Summary.....	116
6.9	Paybox Profile.....	117
6.10	Post Finance Profile.....	117
6.11	Deutsche Bundesbahn's "Touch and Travel" .....	118
6.11.1	Development of Touch and Travel.....	118
6.11.2	How Touch and Travel Works.....	119
6.11.3	Using Touch-and-Travel.....	120
6.11.4	Risks.....	120
6.12	YAPITAL – Digital Money for a Modern Life.....	121
6.12.1	Close Cooperation between YAPITAL and Regulators.....	122
6.12.2	Value-Added Chain and Roles at YAPITAL.....	122
6.12.3	Security, Risk Management, Fraud Detection and Mobile Technologies.....	122
6.12.4	YAPITAL Summary.....	122
6.13	Contactless Payment with girogo .....	123
6.13.1	How Contactless Payment Works with girogo.....	124
6.13.2	Pilot Tests .....	124
6.13.3	Pilot Test Specifics.....	124
6.13.4	Contactless Mobile Payment from the Perspective of the Savings Banks.....	124
6.13.5	Savings Bank Steps to Introducing Mobile Payment Systems.....	125

6.14	Another Example: Mainz 05 FanCard .....	125
6.14.1	Advantages for the Club, Fans and Vendors .....	126
6.14.2	Main Functions at a Glance .....	126
6.15	Splash.....	126
6.15.1	Mobile Added-Value Services.....	127
6.15.2	Flexible Payment Transaction .....	128
6.15.3	Business Model.....	128
6.15.4	Splash Conditions .....	129
6.15.5	Advantages and Disadvantages of Splash .....	130
6.15.6	Development of Splash .....	130
6.16	Avance Pay: Fast, Contactless and Secure NFC Payment and Collection 131	
6.16.1	Solution Description.....	131
6.16.2	Avance Pay at a Glance.....	132
6.17	Pingit – Barclays Domestic/International Mobile Payment Service .....	133
6.17.3	Service Description .....	133
6.17.4	Results of Pingit .....	133
6.17.5	“Mobile Checkout” and “Buy It” .....	134
6.17.6	International Expansion.....	134
6.18	La Caixa’s Mobile payment Services .....	135
7	International Comparisons.....	137
7.1	Mobile Payments via POS Terminals .....	137
7.2	Contactless Payment: Interim Technology for Mobile NFC.....	139
7.3	Comparison of the Mobile payment Strategies of Global Corporations	140
8	Summary .....	143
	Index of Abbreviations.....	153
	Glossary .....	155
	Index of Figures.....	165
	References .....	169



<http://www.springer.com/978-3-658-03250-0>

Mobile Payment

Lerner, Th.

2013, X, 180 p. 94 illus., Softcover

ISBN: 978-3-658-03250-0